university of toronto
computing services

ComputerNews

September 81
No. 193
ISSN 0315-4661

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https://archive.org/details/computernewssept193davi

COMPUTERNEWS

Publisher

University of Toronto
Computing Services
Toronto, Ontario
Canada M5S 1A1

Editor

David Reed

Subscriptions

Subscription changes should be entered on the tear-out form at the back of this issue and mailed to the Information Office, Engineering Annex, Room 206 (or phone 416-978-4990).

COMPUTERNEWS is a monthly publication produced by University of Toronto Computing Services. Enquiries or contributions should be directed to the Editor, Dave Reed or Assistant Editor, Pat Smith in the Engineering Annex, Room 206 or (416)-978-2066. Layout and typesetting are provided by Kathryn Bourne using UTCS typesetting facilities.

Cover

This month's cover photo by Krys Warchol is of a student, comtemplating.

Contents

Welcome Back 3
The CSR 4
Computing at The Engineering Annex 5
The Physics Terminal 6
AST/ASUT 7
Scarborough College 7
Erindale College 8
Publications & Information Office Amalgamation 9
Fall Short Courses 10
Accounting Services 12
Communications & Small Systems News 14
WYLBUR at UTCS 15
Class C and Class E Services 16
Text Services in 1981-82 17
UNIX Text Processing Service 17
UTCS Hardware Changes 18
UTCS Change Committee 18
DECsystem-10 News 19
McLennan Labs Output Handling 22
New Calcomp 1051 Color Plotter 23
New Version of Waterloo SCRIPT Available 23
NAG Numerical Library Available 24
SAS 79.5 News 25
SPSS Release 9.0 27
Personnel Changes 27
New Titles in the DCS Library 28
Systems
Directory

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WELCOME BACK

This issue, the first *COMPUTERNEWS* of the 81/82 academic session, presents an opportunity to welcome you to a new year of computing at UTCS.

As in previous years, UTCS has taken advantage of the summer to effect significant changes in the systems, hardware and services we provide.

Some of our users have been using UTCS' PACX (Private Automatic Computer Exchange) for quite some time. As of June 28 all UTCS dial-up facilities were connected through PACX. This allows the consolidation of numerous hunting groups of telephone numbers into one dial-up number, providing users access to all UTCS interactive services. Furthermore, the elimination of the fragmentation of several hunting groups allows us to reduce the total number of dial-up lines and modems required to satisfy all dial-up needs. This helps protect us from the ravages of Bell Canada's frequent and expensive rate increases. Continuation of our efforts to 'hard-wire' users directly to the PACX benefits both UTCS and the user -- UTCS can reduce the number of slow and expensive dial facilities and the users gain reliability and fast (up to 9600 bps to DEC) access to services.

On August 8 the Administrative computing facilities were transferred from an IBM 3033N8B to an IBM 4341-2. This machine conversion was undertaken to take advantage of (1) the exceptional price/performance of the 4341, (2) the high market resale value of the 3033N8 and (3) the necessity to generate funds to improve the instructional computing facilities for student use. As part of this conversion, APL and ATMS were moved from the administrative machine to the academic 3033N8A. This machine will be upgraded in several stages to improve its performance in coping with the added load.

Improvements to instructional computing facilities are being implemented in two areas -- a VAX780-based 'glass-keypunch' service to initially augment and eventually replace the existing card-based HSJS service, *and* a VAX 750-based UNIX instructional facility for higher year computer science and engineering courses.

The 'glass-keypunch' service, named LIBRA, was described in the May/June issue of *COMPUTERNEWS*. The site for the first 60 terminals approved in phase 1 of the project has been selected and approved in principle, pending the Physical Plant Departments' determination of cost estimates to prepare the site. It is presently used as a reading area, on the ground floor of the Robarts Library. Unfortunately it does not appear likely that Physical Plant will be able to complete the installation of the power, cooling, fire exits and other site preparation activities in time for the beginning of the fall term. UTCS will, therefore, establish a smaller contingency site, with ten terminals and a printer, in the room adjacent to the Arts and Science Undergraduate Terminal (ASUT). This temporary site will allow us to test, evaluate and debug the concepts and system with a smaller number of students and then expand to the final site as soon as it is ready.

The UNIX facility is a replacement and expansion of the service UTCS provided last year on our 11/70. A VAX 750 with 24 terminals and 3 TTY 40 printers will be located in the Engineering Annex for maximum availability, 24 hours a day (12 hours on weekends). Also, the Erindale and Scarborough campuses will each have 4 terminals and a printer connected by multiplexed data channels to the VAX 750 in the Annex. The installation of this dedicated machine and more terminals will greatly improve the quality and quantity of UNIX-based instructional services we provide.

The Physics Undergraduate Terminal (PUT), which had been temporarily established in the second floor lounge of the

continued...

WELCOME BACK continued

McLennan Labs, is being moved to its permanent resting place in the Ramsay Wright Building, for use this fall. This facility of 22 keypunches, an IBM 2501 cardreader and 1403 line printer will be known as the Zoology Undergraduate Terminal (ZUT). This additional HSJS access area will relieve the crowding at EUT and ASUT until the 'glass-keypunch' project matures sufficiently to allow replacement of keypunches.

In summary, we look forward to providing new, improved and more widely accessible computing services for users in the coming academic year.

Eugene Siciunas

THE CSR

The Computing Services Representative (CSR) is the liaison between users and UTCS human resources, software and hardware. The CSRs' duties include advising, staff supervision and the operation of terminal sites. CSRs keep UTCS informed of user needs and make users aware of UTCS services. Several aspects of the CSR role are discussed below.

Advising

CSRs are the primary interface between the user community and UTCS. Users are encouraged to approach the CSR responsible for their Department or Faculty with questions regarding all aspects of UTCS. CSRs handle 90% of initial inquiries directed to them. They contact appropriate UTCS support staff on the user's behalf for problems outside their own areas of expertise: if problems are too technical or complicated, CSRs arrange a meeting between user and support staff. CSRs monitor progress to the solution, assuring user satisfaction.

This approach benefits users and UTCS. It frees UTCS technical and support people to spend more time on system development, maintenance and evaluation. It also gives them the opportunity to produce documentation and educational aids for the user and to develop and introduce new products for the university community. The user benefits in that he deals with a single, knowledgeable individual within UTCS. This ensures that general difficulties with or misunderstandings of UTCS services are identified and presented to an appropriate UTCS staff member. In most instances, CSRs have their own areas of expertise.

CSRs or their staff are available to assist users from 9:00 - 5:00, Monday through Friday. In some instances, advising staff are available outside these hours.

User Contact

CSRs contact their users on a regular basis to determine users' computer needs. User opinions regarding changes to software and hardware are actively solicited, hence users contribute to UTCS decisions. Concurrently, CSRs contact members of the user community who are most affected by any proposed changes, to determine their impact. CSRs keep the user informed about new products and services offered by UTCS. In some cases, CSRs direct a user to an already existing product to accommodate his needs. (There have been past occasions in which users, not aware of the full range of our services, have spent hours duplicating the results of existing, well-tested packages!)

Personal Development

An integral part of the CSRs' job is personal development. Each CSR continues to upgrade his technical expertise with both UTCS software/hardware and other products available in the industry. CSRs attend courses, seminars and conferences to upgrade skills. In some cases, CSRs gain expertise in specific areas by testing and evaluating new software packages. The role

continued...

THE CSR continued

of the CSR is designed to evolve, as user needs change. CSRs continually monitor their own effectiveness and make suitable modifications required in their jobs.

The Computing Services Representatives

Arts and Science Terminal	
Bill Fehlner	978-6509
EAT/EUT	
Sue Mai Chong	978-4357
Erindale	
Peter Wall	828-5311
U of T Affiliates	
Ihor Prociuk	978-6875 or 978-6885
Physics	
Bob Chambers	978-8823 or 978-5120
Scarborough	
Bob Blackburn	284-3173
Time-sharing	
John Mavity	978-7109

Questions regarding CSRs should be directed to Terry Wood, 978-7130.

Terry Wood

COMPUTING AT THE ENGINEERING ANNEX

The Engineering Annex, 11 King's College Road, is east of the International Student Centre and south of the Sandford Fleming Building. This Engineering Annex Terminal (EAT) location offers four different computing facilities: a High Speed Job Stream (HSJS) undergraduate terminal, a batch-oriented General Purpose Job Stream (GPJS) terminal, interactive terminal facilities and the VIVA facilities.

Part of EAT, the Engineering Undergraduate Terminal (EUT) is for undergraduate processing of HSJS jobs. This terminal provides

- 37 keypunches (5 for express use)
- a 1100-line-per-minute printer
- 1000-card-per-minute reader.

There is also a work room for students to debug their programs.

EAT provides batch service for GPJS users. EAT has three 1100-line-per-minute printers. Of these, one is reserved for very large print jobs and special forms requirements. This printer is operated by EAT operations staff. The other two printers are self-serve. As well as a 1000-card-per-minute reader EAT has

- a card punch
- two interpreters
- a GOULD 5200 plotter
- 5 keypunches
- three DECwriter interactive terminals
- a Xerox Diablo terminal.

The interactive terminal facilities are in Room 107A, Engineering Annex building. This room contains 8 Volker-Craig interactive terminals hardwired to the DEC-10 and 5 DECwriter interactive terminals (dial-up).

At the Engineering Annex there are 8 VIVA workstations in room 203 set up for students. With the aid of these workstations, a student can process course assignments on HSJS.

The terminal is open 24 hours daily *except:*

Saturday at 00:00 to Saturday 08:00
Saturday at 20:00 to Sunday 08:00
Sunday at 20:00 to Monday 08:00

continued...

ENGINEERING ANNEX continued

For assistance with operational aspects of your programming jobs, consult helpful I/O operators Andrew, Jim, Janet and Steve. They assist users in finding their jobs, fix interpreters, keypunches and interactive terminals and provide information concerning UTCS policies and procedures. I/O operators are at 978-7373.

To assist you with programming difficulties we have a staff of part-time programming advisors, a full-time programming advisor and a Computing Services Representative (CSR).

Programming assistance from the part-time advisors is available in the fall and winter terms during the following hours:

10:00 - 20:00 Monday to Thursday
10:00 - 17:00 Friday
13:00 - 17:00 Saturday & Sunday

The full-time programming adviser, Ted Sikorski, is in room 103A of the Engineering Annex and can be contacted at 978-4757 during regular working hours.

The CSR, Sue Mai Chong, is on the main floor of the Engineering Annex. Contact Sue at 978-4357 during regular working hours.

We encourage you to use graffiti sheets posted in the GPJS terminal area and outside the HSJS terminal to voice opinions and suggestions concerning the terminal and UTCS. Welcome to computing at UTCS!

Sue Mai Chong

THE PHYSICS TERMINAL

The Physics Terminal (PHYST) is situated in Room 1202 of the Burton Tower, St. George campus. Batch computing is supported by a CDC Cyber 18-05 JES workstation and a number of keypunches. There are 2 CRTs and 2 hardcopy interactive terminals, all of which are connected to the UTCS PACX front end switch and all of which are equipped with both ASCII and APL character sets. Additionally a Sycor 3278-type full screen terminal is available for use with the TSO, WYLBUR and ATMS services. The Physics Terminal has a wide selection of computing manuals available for reference.

The Physics Terminal is operated almost totally on a self-service basis. Because of limited space and the demand on equipment and facilities, PHYST is restricted to faculty, staff and graduate student use.

Bob Chambers is the CSR responsible for the Physics Terminal. His office is in Room 1203B, Burton Tower, and he can be reached at 978-8823. William Barek is the programming advisor and is on duty at the Physics Terminal in the afternoons.

If you have any questions or computing problems, please drop by or phone us.

William Barek
Bob Chambers

AST/ASUT

We welcome back students, faculty and staff to the computing facilities at the Arts and Science Terminal (AST) and the Arts and Science Undergraduate Terminal (ASUT). We also extend a warm welcome to new users of these facilities in the Sidney Smith Building, St. George Street.

There is a new face in the ranks of full-time staff at AST and ASUT: William Barek became programming advisor last March. William also spends part of his time at the Physics Terminal (PHYST). He came to UTCS from the Department of Nutrition at U of T where he worked as computing, statistics and research design consultant. His research background includes design of research methodologies and analysis of experimental data in medical, social sciences and education fields.

The physical layout of ASUT will continue to change throughout the academic year. Some of the room for debugging programs will not be available during construction of the extension to Sidney Smith. In addition, some space will be used for the prototype implementation of the LIBRA student workstations.

The number and variety of terminals at AST continues to increase. In addition to the Volker-Craig screens and the Diablo hardcopy terminal in Room 2104, three IBM 3278 screens were installed this past June. The latter make possible general access to the full screen editing features of WYLBUR, TSO and ATMS. Terminal speed on the Volker-Craigs can now be carried out at both 1200 and 4800 baud.

For users who require assistance with programming or who have difficulties operating the equipment at Sidney Smith, an advising service is available in Room 2100. Users who plan new computing applications are encouraged to contact either Bill Fehlner or William Barek at 978-6509 for advice in choosing the most effective systems and packages.

We are excited about the future of AST and ASUT and hope to fully satisfy the needs of our expanding user community. Feel free to come in and see us if you have questions or suggestions about the development of AST.

Bill Fehlner
William Barek
Merton Hunte

SCARBOROUGH COLLEGE

The staff of the Scarborough College computer centre welcome back students, faculty and staff from their summer vacations - and all new students to the campus.

The summer was relatively quiet at the centre, with no changes in local hardware. However we have had some changes in personnel: Grant Davis, operator/advisor at the centre for the past year, left to join the Communications and Small Systems Group at UTCS on the downtown campus. We at the centre wish him the best of luck in his new position. Shirly Manimalethu has joined the staff at the centre as the new operator/advisor. Shirly was previously a senior operator for UTCS on the DEC-10 system downtown. Welcome to Scarborough College Shirly! There are also 5 part-time operator/advisors who work evenings and weekends at the centre. Two veterans, Tej Minhas and Yoram Beer, will return this fall and three new advisers will be hired.

For those of you who haven't been to the

continued...

SCARBOROUGH continued

computer centre, we are located on the sixth floor of the Science Wing. The hardware includes:

- **Batch Terminal** - consisting of one line printer (600 lpm) and one card reader (600 cpm), which communicates with HSJS and GPJS services located on the St. George Campus.
- **Keypunches** - 13 keypunches are available.
- **Interactive Terminals** - There are four screen and four hardcopy dial-up terminals at the centre which can be used to communicate with any of UTCS' mainframe services.

The computer centre supports all courses, academic and administrative computing at the College and provides access to all computer resources offered by UTCS.

So, if things get a bit hectic around registration time, take a break! Come up and meet the staff. We would be happy to explain the equipment and how it works and help you with any of your computing needs.

The normal operating hours at the centre during the winter session are :

09:00 to 22:00 - Monday to Thursday
09:00 to 17:00 - Friday
12:00 to 17:00 - Saturday

There will be some changes to these hours throughout the year due to holidays, exam and reading weeks, etc., and these changes will be posted in advance.

Bob Blackburn

ERINDALE COLLEGE

The staff of the Erindale College computer centre extend a welcome back to all users.

Next year, as part of the overall university upgrade, we will see major changes and enhancements to the existing computing facilities.

As an interim measure, to alleviate the congestion problem experienced last fall, the number of keypunches will be increased from thirteen to twenty. They will give way to two terminal-based systems. One running UNIX will be available this September.

This transition will be as smooth as possible. If you have any special concerns, please feel free to drop by and see Howard Lem or myself. Our hours, starting September 21st, are:

Monday-Thursday	9:00-22:00
Friday	9:00-17:00
Saturday-Sunday	12:00-18:00

We look forward to seeing you.

Peter Wall

PUBLICATIONS & INFORMATION OFFICE AMALGAMATION

Returning users will note that the Accounting Office is no longer in room 206 of the Engineering Annex building.

Instead, the Information Office and Publications group at UTCS have merged to become Information Services and now occupy Room 206. This new group is responsible for all aspects of documentation at UTCS.

UTCS produces a variety of in-house documentation to acquaint the user with all resources available at UTCS and to enable him to use facilities which he needs. The following is an outline of various publications available at UTCS.

USERBOOK

USERBOOK is the official reference manual for UTCS computing services. Its modular design allows each subscriber to compile a customized reference manual. USERBOOK is updated on a regular basis. Updates are automatically mailed to subscribers.

Reference Cards

A series of pocket-sized reference cards, summarizing the JCL and/or command lists for heavily-used packages, is available. These reference cards point to the appropriate chapter/module of USERBOOK for detailed information. The INTRODUCTION TO HSJS card is an example.

HOW TO Series

The HOW TO series of manuals assists users in the operation of the self-service equipment at UTCS. Each manual describes the basic techniques required to operate the equipment at a given terminal; step-by-step explanations are accompanied by examples and photographs. These manuals can be stand-alone documents or optional USERBOOK modules. Some of the available titles:

HOW TO USE
  AN IBM 029 KEYPUNCH
  AN IBM 2501 CARD READER
  AN IBM 1403 LINE PRINTER

COMPUTERNEWS

COMPUTERNEWS, the UTCS newsletter published 8 times yearly, describes current staff and systems activities. It is available free of charge to UTCS users.

Other Publications and Supplies

In addition to supplying sections of the UTCS USERBOOK at minimal cost, there is a stock of IBM publications and other computer-related material for sale. These materials include: text processing documentation, statistical publications, coding forms, terminal ribbons, printwheels and diskettes. Items not regularly stocked can be ordered.

User Reference Library

Information Services houses a user reference library with all software documentation catalogued and available. This collection includes subscriptions to a number of computer reports which are updated monthly. There is an extensive collection of IBM reference manuals, periodicals and newsletters from locations all other North America.

Additional Services

Additional services are arranged such as the assembling of documentation for distribution in computer courses. Orientation lectures on UTCS services are provided upon request.

Information Services is open from 9:00 a.m. to 5:00 p.m., Monday to Friday. For further information please phone 978-4990.

David Reed

FALL SHORT COURSES

Throughout the year UTCS offers a number of short courses to instruct customers on the use of various products and services available. The duration of each course is usually 5 to 10 hours over a number of days and involves a registration fee of $10., payable in cash or non-computing appropriation at least 3 days before the first meeting. Registrants are also required to hold a valid Service Access Code (SAC) for use during the course. Registration and fees are handled by:

Information Services
Room 206, Engineering Annex Bldg.
978-4990

Courses planned for the fall are:

JCL101 - JCL For Beginners

Intended as an introduction to IBM JCL (Job Control Language). The use of JOB, EXEC and DD statements will be discussed and examples and assignments will assume job submission via the card reader. Knowledge of a programming language or experience with a computing application will be assumed.

Date: September 14 thru 18
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Rob Janes, 978-2670

DEC101 - DECsystem-10 Novice Users

The course will provide all the basic information required to start on the DEC-10. Major topics of discussion are: Terminal input/output capabilities provided by the system), login/logout disaster handling, file handling and management, how to get hardcopy, how to reclaim lost files, how to get help.

Date: September 22
Time: 9:00 am - 3 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Corot Reason, 978-6601

SAS101 - Statistical Computing with SAS

This is an introductory course that places a heavy emphasis on concepts and the basic approach to statistical computing. Some elementary JCL will be covered and enough SAS will be taught to create a file from 'simple' raw data for preliminary analysis. Some reference will be made to some of the features in SAS.

Major topics of discussion: Definition of terms (i.e., variables, observations and missing values), creation of files from raw data, data cleaning, descriptive statistics.

Date: September 28 thru October 2
Time: 2:00 - 3:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Diane Mitchell, 978-5128.

WYL101 - Introduction to WYLBUR

On overview of WYLBUR concepts will be presented. Students, through hands-on practice, will be taught data collection, batch job submission and output retrieval. A knowledge of at least one batch processor (FORTRAN, PL/1, etc.) is required.

Date: September 28 thru Oct. 2
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Rob Janes, 978-2670

GRA001 - Graphics for Non-Programmers

This course is a workshop that gives a simple introduction to the concepts of comput-

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FALL SHORT COURSES continued

er graphics through the use of UTCS' KIG package. Programming knowledge is not required and will not be taught.

Major topics of discussion: Piecharts, barcharts, line graphs, simple drawings, pictures, diagrams, using an interactive terminal for graphics.

Date: October 5 thru 9
Time: 2:00 - 3:00 pm
Place: 49 St. George St., Room 302
Instructor: Kin Fong, 978-4924

DEC301 - DECsystem-10 Advanced Users

This course will discuss the DECsystem-10 in some detail. The idea is to provide information that would be useful to most users over the long term. Emphasis will be on details not likely to interest word processor users. This course is only for users who have some experience with the DEC-10 and is not intended for novice users. (See **DEC101.**)

Major topics of discussion: System structure and components, little known features, MIC, file system details (including the file daemon), tape use and file backup/restore, a basic intro to TECO, the mail system, IBM RJE, a thorough examination of all monitor commands, tools for programmers.

Date: October 6
Time: 9:00 am - 3:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Corot Reason, 978-6601

SAS103 - Introduction to SAS for SPSS Users

This two-hour seminar will cover the main features of SAS with a comparison to SPSS. Techniques of conversion from SPSS to SAS will also be discussed.

Date: October 7
Time: 3:00 - 5:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Diane Mitchell, 978-5128

JCL201 - Intermediate JCL

The focus of this course will be the data definition (DD) statement. Dataset organization and DD parameters for accessing tape and disk data will be covered.

Date: October 13 thru 16
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Rob Janes, 978-2670

DEC201 - DECsystem-10 Assembler

This course will consist of five lectures aimed at discussing MACRO-10 - the assembler on the DEC-10. This course is intended for experienced DEC-10 users only.

Major topics of discussion: Hardware considerations, DEC-10 instruction set, assembler formatting and pseudo-operations, monitor calls, debugging techniques.

Date: October 19 thru 23
Time: 10:30 am - 12:00 noon
Place: Engineering Annex Bldg., Room 207
Instructor: Ed West, 978-4085

GRA101 - Graphics for Programmers

This course outlines the basic concepts of computer graphics through the use of batch and interactive terminals. It also serves as an introduction to more sophisticated graphics packages and routines. A knowledge of FORTRAN and/or PL/1 programming is required for this course.

Major topics of discussion: An examination of KIG, simple graphics programming using basic graphics routines, the batch environment, GOULD, CALCOMP, other graphics packages.

Date: October 19 thru 23
Time: 2:00 - 3:00 pm
Place: 49 St. George St., Room 302
Instructor: Kin Fong, 978-4924

continued...

FALL SHORT COURSES continued

SAS102 - Introduction to SAS for Terminal Users

Similar to **SAS101** but a knowledge of WYLBUR and JCL will be assumed.

Date: October 19 thru 23
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Diane Mitchell, 978-5128

SAS201 - Intermediate SAS

This course is a continuation of **SAS101.** Those wishing to take this course should have completed **SAS101** or be familiar with SPSS, BMDP, SAS, or a programming language such as PL/1, FORTRAN, etc. This course will get into the features of SAS that are only touched on in **SAS101.**

Major topics of discussion: Input from 'not so simple' data, report writing using SAS, dataset manipulation (splitting, updating, merging), more complicated procedures.

Date: October 26 thru 30
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Diane Mitchell, 978-5128

FOR101 - Techniques in FORTRAN

This course presents FORTRAN in a structural manner to foster top-down structured programming. Techniques in reading and writing clean and manageable FORTRAN programs are offered, as well as program testing and common pitfalls. An elementary knowledge of FORTRAN is desired. However, students with knowledge of another programming language will be accepted.

Date: November 2 thru 6
Time: 3:00 - 4:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Rob Janes, 978-2670

PLI101 - Techniques in PL/1

This course presents PL/1 in a structural manner to foster top-down structured programming. Techniques in reading and writing clean and manageable PL/1 programs are offered, as well as program testing and common pitfalls. An elementary knowledge of PL/1 is desired, but not required.

Major topics of discussion: Program entities, data types, operations on data, control constructs, input and output, data scope, data conversion/mapping/overlay, special conditions handling, CHECKOUT vs OPTIMIZING. Some knowledge of the PL/1 language assumed.

Date: November 9 thru 13
Time: 2:00 - 3:00 pm
Place: Engineering Annex Bldg., Room 207
Instructor: Kin Fong, 978-4924

Marg Doherty

ACCOUNTING SERVICES

Accounting Services, located in Room 257, McLennan Physical Labs., handles requests for new accounts and Service Access Codes (SACs) as well as changes to existing accounts. The following describes basic account divisions and how they are funded and controlled.

UTCS accounts and codes are structured on three levels, operating interdependently: Blanket Purchase Order Account Number, Customer Account Number and Service Access Code.

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ACCOUNTING SERVICES continued

Blanket Purchase Order Account (BPOA)

Accounts are normally funded by a customer raising a Blanket Purchase Order through his Department. This Blanket Purchase Order encumbers or reserves funds required to meet the estimated cost of that customer's computing at UTCS for a limited time, usually a fiscal year. The dollar amount shown on the Blanket Purchase Order is recorded by UTCS in a holding account - a Blanket Purchase Order Account (BPOA). This amount becomes the customer's credit limit or allotment. It can be changed at any time by requesting an increase or decrease on a Purchase Order through the University's Purchasing Department.

Customer Account Number (CAN)

The allotment in a BPOA can be divided out or budgeted for different individuals, projects, courses, etc. at the next control level - the Customer Account Number (CAN). If all funds alloted to a BPOA are used for a single purpose, one CAN is established and the spending limit on that CAN is identical to the total amount allotted to the BPOA. However, any number of CANs can be set up, each with individual spending limits (the total of which should not exceed the BPOA allotment).

Service Access Code (SAC)

To access the various software products and services on any of the UTCS computing systems, a Service Access Code (SAC) must be established for each machine system that the customer intends to use. SACs are set up for users who are authorized owners or holders of a valid Customer Account Number. Any number of SACs can be set up under a single CAN and the CAN holder may distribute these SACs to other individuals. In this case, it is up to the CAN holder to control the spending limit for his account. This may be done by requesting that a dollar limit be set on a SAC and/or by restricting the types of services which a SAC may use.

Conditions of Usage

The following conditions of usage apply to all UTCS SACs:

1. A SAC is issued to the Customer Account holder and, as such, is non-transferable without the authorization of UTCS Accounting Services.
2. Other persons using such SACs under the supervision of the Customer Account holder must be registered with UTCS Accounting Services.
3. All authorized code users are expected to take the prescribed steps to protect codes from unauthorized use (see *USERBOOK SECTION 2)* and to use the code only for access to private files created by the code, other special files made available to that code or files in public libraries.
4. Users are requested, for their own protection, to report any improper use of the computing facilities to UTCS Accounting Services.

Billing:

At the end of each month, charges accrued for the month are billed against the Blanket Purchase Order which funds computing services at the various account and access levels. The unused portion of the encumbered amount of the Blanket Purchase Order becomes the BPOA allotment for the next month's usage. At the end of the month, detailed statements are mailed to individuals within each Department who are responsible for budget control at the various levels. The types of reports are:

Departmental Summary Report - sent to Departmental Representatives showing a record of activity on each BPOA and CAN used by the Department.

BPOA Report - mailed to persons in whose name the Purchase Orders have been raised (BPOA holder). This report shows a sum-

continued...

ACCOUNTING SERVICES continued

mary of all activity on CANs drawing allotments from that BPOA.

CAN Report - addressed to persons in the Department responsible for control of expense at the CAN or project level. This report contains a detailed summary of job charges, storage charges and miscellaneous items billed directly to the CAN.

If you have questions about UTCS accounting, please contact either the CSR for your Department or Marg Doherty at 978-3960.

Marg Doherty

COMMUNICATIONS AND SMALL SYSTEMS NEWS

- In an industrial environment, lightbulbs coming off an assembly line are monitored by small computer to measure production efficiency.
- During a perception experiment on campus the volunteer looks at a series of pictures while a machine watches his eye movements.
- In another corner of the campus, students prepare programs for submission to the IBM system.
- Administrators prepare complex reports.

The only common factor in these diverse activities is the computing equipment provided and maintained by the Communications and Small Systems (CSS) group within UTCS.

Many users of UTCS services on the IBM system and the DECsystem-1090 may be unaware that the terminals and lines for these large systems are, for the most part, maintained by staff from CSS. We have a Field Services group, charged with maintaining both communications links and UTCS-provided computer terminals and associated equipment at the downtown campus. This group also maintains many of the small computer systems installed in laboratories as well as the VIVA workstations.

Our Hardware group builds such custom hardware as is needed for other groups within UTCS. It also configures and assembles small computer systems purchased or leased by staff in other departments of the University.

It is difficult to read a newspaper or magazine these days that does not make some mention of microcomputers and the changes they are making in our world. While the application of microprocessors 'built into' cars, appliances, etc. is not within our realm, we do have expertise in microcomputers such as Z-80 S-100 systems, the Apple II and the Radio Shack TRS-80. We offer assistance to users interested in acquiring microcomputers for university applications. Please contact Mike Grossman or Ron VanderKraats at 978-5071 for information.

The CSS lab includes

- a medium-scale PDP-11 system
- an 11/40 with GT44 graphics
- online-track magnetic tape
- analog/digital converters
- several disk and diskette formats
- a line printer
- several other peripherals.

There is also a smaller 11/05 system with GT40 graphics. These machines are available on an hourly rate basis to CSS account holders. For more information on the CSS lab systems, please contact Phil Selby at 978-4600.

VIVA is a project to provide an intelligent computing workstation to staff and students who would benefit by its use. While VIVA has been identified with submission of student jobs to the IBM system (the first ser-

continued...

CSS NEWS continued

vice implemented), we plan to offer a wide range of services on these versatile computing workstations. Services planned or being built at present include interactive program development and debugging and access to UTCS centralized services. Contact Ian Darwin at 978-4597 for information.

There is considerable networking activity in the computing community. Naturally UTCS has considerable interest in networking since we already have several large networks of terminals as well as several mainframe computers hooked together with various types of communication. We are investigating ways to improve the service UTCS provides users in this important area.

As of August 1981, the CSS staff and equipment are housed in new quarters at the old Metro Library building. Our entrance is at 20 St. George Street, also known as the East Entrance of 214 College Street. UTCS users interested in our services are invited to contact the appropriate people, listed above. For viewing our facilities please contact Phil Selby at 978-4600 to arrange a short tour. We look forward to showing you the ways in which Small is Better!

Ian Darwin

WYLBUR AT UTCS

Are you tired of batch computing? Have you even found it awkward or inconvenient to make corrections to your deck using a keypunch? If you answered 'yes' to either of these questions, perhaps it's time for you to consider using WYLBUR.

WYLBUR is an interactive system at UTCS that is designed with the batch computing user in mind. WYLBUR users don't have to deal with keypunches, punched cards or card readers. Instead, they use a personal typewriter-like terminal to communicate with the computer, over regular telephone lines. They can enter, save, correct and submit their jobs and examine the results using this terminal. Furthermore they have at their disposal a powerful editing system which makes job preparation and correction much easier than with cards.

Since WYLBUR users keep their data on the system, it is available for correction any time that the IBM 3033N8A is running. It is no longer possible to inadvertently leave that critical deck at home, and it is no longer necessary to carry heavy boxes of cards from their storage place to the card reader. WYLBUR uses its own special data encoding system which keeps online storage cost to a minimum.

Users can take maximum advantage of WYLBUR when they have a typewriter terminal in their office or home. Terminals in the public terminal areas can also access the WYLBUR system.

Conversion from punched card to the interactive environment is unusually easy. The typewriter terminal which is used to access WYLBUR is easy to operate and maintain. WYLBUR provides features which most users find convenient and powerful. WYLBUR is designed specifically to assist batch processing used in conjunction with existing batch programs. UTCS has the necessary resources to assist users in using WYLBUR effectively and quickly including introductory courses, advising facilities and online and hardcopy documentation. Some documents are specifically written with the beginning user in mind.

Interested? If so, there are three ways to get more information:

- Copies of the *WYLBUR User's Guide* can be obtained through UTCS' GPJS service by running the following procedure:

continued...

WYLBUR AT UTCS continued

```
//jobcard
/*JOBPARM L=50
// EXEC WYLMN
/*
```

The output generated by this job will produce a copy of the *Guide* on 8.5 by 11 inch paper (UTCS form 2009) and will print about 5000 lines.

- UTCS is offering an introductory course on WYLBUR in the fall. If you are interested, please call the Information Office at 978-4990. For times and dates, see page 10.
- Your CSR would be pleased to give you more information about WYLBUR at UTCS.

In the meantime, the next time you read in your box of cards, please remember that there is an easier way!

Dave Reed

CLASS C AND CLASS E SERVICES

UTCS currently offers U of T users two low cost batch services - Class C and Class E. Both services offer computing at lower rates than either Class A or B. Class C and E jobs are executed weekdays between approximately 01:00 and 06:00.

The difference between these two services is mainly in the charging algorithms. Class C jobs incur no charge for CPU time used. Other items like memory usage, I/O usage (tape and disk EXCPs, VIO pages), peripheral devices (tape, disk mounts, etc.) and unit record processing (cards read, lines printed, cards punched etc.) are charged the same rates as in Class A and B. A service factor of 0.75 is usually used to calculate the charges; a service factor of 0.375 has traditionally been applied to the memory usage charge during the summer months of June to September.

Class E jobs receive no charge for memory usage. The service factor used to calculate the CPU time charge is 0.044. Charges for I/O usage, peripheral devices and unit record processing are calculated as in Class C. Class E jobs incur a minimum charge of $15. if the total of the CPU time, I/O usage and peripheral device charges is not greater than this amount. Class E is designed for users with programs that require large amounts of memory usage.

To determine if your Class C job can be run at less cost in Class E, consider the following: first, only those Class C jobs which use more than 70K of memory, averaged on the job, can *potentially* save money by running in Class E. During the June to September period this figure becomes 140K. Secondly, of the jobs satisfying the first criterion, those in which the total of the Class C charges for memory usage, I/O usage and peripheral devices exceeds $15. will cost less when run under Class E.

Another difference between Class C and Class E lies in the maximum amount of memory which can be obtained. Class C jobs can at most use 500K of memory. Class E jobs can request up to 1000K of memory if a /*SETUP REGION statement is used. Thus Class E may appeal to some current Class B users whose programs need between 500K and 1000K of memory.

Users should note that the Class E service option must be requested on the GPJS SAC request form if access to this service is desired. If Class C and Class E services interest you, your CSR will provide more information.

Bob Chambers

TEXT SERVICES IN 1981-82

Most people at a university spend much of their time working with text -- reports, theses, memos etc. Today many people are finding that computers can (1) remove much of the drudgery traditionally associated with preparation of large documents and (2) give users more control over their text than they previously had. These reasons explain the growing interest in text processing at University of Toronto on the part of students, faculty and administrative personnel.

UTCS continues to offer a growing text service. Last year the most significant change was the upgrade of ATS to the more flexible ATMS system. ATMS has, since then, become a popular system with many administrative users. This year perhaps the most significant change will be the availability of UNIX text processing services.

UNIX is a sophisticated operating system which runs on Digital Equipment Corporation's computers. The system provides a text processing system conceptually similar to SOS/RUNOFF on the DECsystem-10. However it has many powerful text-oriented utility programs and special tools to assist in the preparation of simple or complex tables and mathematical formulae. In August UTCS began providing UNIX text services on its 11/70 computer. A course for beginning UNIX text processing users is scheduled for early October.

John Bradley

UNIX TEXT PROCESSING SERVICE

In September, UTCS is offering a UNIX text processing service to users. Using this service, users can produce documents of many sizes and types *and* output on high quality printing terminals, on the UNIX line printer or on the typesetter.

At the time of writing, it is expected that the service will be charged at the following rates:

combined connect time and CPU	$5.00/hr
storage charges	2 cents/kiloblock/day
line printer charges	$1.40/thousand lines
typesetting charges	$0.30/inch
typeset simulation charges	$0.10/inch

As with all other systems charging for connect time, storage charges and line printer charges may be billed to a UTCS CAN. Typesetting and typeset simulation charges must be billed to a 'real money' appropriation number or equivalent ' real money' source. For more information about UNIX accounting, or to open a UNIX account, please contact your CSR.

UTCS' Text Services Group will offer an introductory course for beginning users in basic text processing using UNIX, starting in October. The only prerequisite for the course will be an account on the UTCS UNIX machine. Please contact the Information Office at 978-4990 for more information and to register for courses.

John Bradley

UTCS HARDWARE CHANGES

Recommendations of the Presidential Advisory Committee on Computing Facilities and Services (PACCFS) gave rise to decisions which affect UTCS' machine configuration.

In late July, an IBM 4341-2 was installed. On August 8th, this machine went into production for Administrative Computing.

The IBM 3033N8B, which previously served Administrative, APL and ATMS users, was dismantled on August 13th, prior to being shipped out.

A DEC VAX 11/780 has been installed to support LIBRA student services and a DEC VAX 11/750 to support UNIX student services.

Due to the 3033/4341 change, APL and ATMS are now running on the 3033N8A. To ensure performance consistent with the previous configuration, UTCS will install extra main memory and/or solid state disk on this machine.

Implemented changes to the configuration increase UTCS' capability to serve its users and every effort has been made to maintain a satisfactory level of service to all users.

Bill Lauriston

UTCS CHANGE COMMITTEE

Selected change requests, submitted since the last update, are:

- The TSO default LOGON region size for new users is to be increased to 250K. This is up from 150K because users running SAS encounter space problems. Current SAS users can have their default LOGON region size increased by making a request to the Accounting Office.
- As the result of a user request, the Oxford University Concordance Program will be acquired.
- SHARP APL will be upgraded to the June release during the next two months. See next month's *COMPUTERNEWS.*
- Waterloo Script Release 3.7 is to be installed and supported on the IBM Academic System. See page 23.
- An additional USER volume has been added to the IBM Academic system. It adds about 15,000 tracks to the available online user storage. The new volume is labelled "USER09."
- IMSL has been updated to Release 8.1. This is a maintenance release.
- IBM has provided new circuitry which marginally speeds up the 3033N8 processor. Its installation was approved and carried out in mid-July. This change results in a 5-14% reduction in the cost of computer cycles.
- The implementation of ACF2 makes it preferable that HSJS account allocations map directly to CANs rather than to SACs. Work on this is scheduled to be carried out during October.
- Change #294 requests that an instructional UNIX facility be installed, approved by the Administration as part of a plan for enhanced student services. UNIX will run on our new VAX/750 and will be located along with its terminals on the second floor of the Engineering Annex.

continued...

UTCS CHANGE COMMITTEE continued

- Change #295 requests that a VAX/780 be installed for LIBRA student services. This installation comprises the approved 'Phase I' of the Working Group on Undergraduate Computing Facilities' long-term recommendations aimed at reducing the University's reliance on keypunches. The new terminal site will be at the Robarts Library. No keypunches are to actually be disposed of during this phase. Change #297 requests that a 10-terminal temporary LIBRA student services facility be installed at ASUT. This will serve as a test facility for the Robarts installation.
- SPSS has been updated to Release 9.0.

Terry Farley

DECSYSTEM-10 NEWS

On behalf of the DECsystem-10 support group I would like to welcome all new and returning users. Those who have used a DEC-10 at UTCS or another installation will no doubt be interested in some recent changes and future plans. These are described later in the article.

If you are a new or potential user, the following overview will be of interest.

DECsystem-10 Overview

The DECsystem-10 is a general purpose time-sharing computer system manufactured by Digital Equipment Corporation. DEC-10 time-sharing takes maximum advantage of the capabilities of the computer by allowing many independent users to share the facilities of the system simultaneously. In this way, each user interacts with the system as if he were its only user. The TOPS-10 operating system provides users with a powerful command language and a flexible, easy-to-manipulate file system. In addition, a full range of working software is available to every user.

The UTCS DEC-1090 has somewhat more raw computing power than an IBM 4341. However, in terms of both architecture and user interface, the DEC-10 is very different from other UTCS machines. For example, most of the 398 instructions operate on full 36-bit words, although some operations manipulate bytes of arbitrary size and position. Character strings are stored five per word using 7-bit ASCII. The system implements a virtual memory scheme which can be utilized or not at each user's discretion.

The memory consists of 256K 36-bit words. Program sizes are usually specified in terms of pages, each of which is 512 words long. The system as a whole, then, has 512 pages. In addition, there are four 200 MByte disk drives on the system, providing a total of almost 160 million words of mass storage. Users may access the system through one of a total of 64 terminal interfaces. There is also a high speed communications link connected to the IBM 3033.

The TOPS-10 Command Control Language consists of over 100 simple statements by which means the time-sharing user communicates with the operating system to control the running of his task or job. In fact, all activity on the system begins with commands entered by users at their terminals. In many cases the user can omit command parameters and the operating system will supply reasonable default values. The end result is that the Command Control Language, although extensive, is easy to learn and use.

The same command control language is also used when submitting a job to the GALAXY batch system, if the user prefers not to execute it interactively. The control statements for DEC-10 batch are identical to those used by an interactive user, except that several special batch-only commands

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DECSYSTEM-10 NEWS continued

exist which allow the user to modify the flow of control in the event an error occurs.

There is also a 'terminal batch' facility called MIC (Monitor Interpretive Commands) which allows users to execute their own predefined command sequences. In addition, a simple command allows users to submit jobs to the UTCS IBM 3033 batch stream and to retrieve the resulting output, all the while remaining connected to the DEC-10.

In general, the user is not restricted to a few special programs while he is using the DECsystem-10. Instead, he is able to use any of the available utilities, editors, compilers, assemblers, debugging facilities, operating system support programs and, of course, programs he himself has written. He can create, edit and delete files; start, suspend and terminate his job; compile, execute and debug his program. One of the main advantages of DEC-10 time-sharing is that the user has the capability of using a large number of different programs, each brought into memory as it is needed, during a single time-sharing session.

Two powerful editors are available for text file preparation. TECO, a character-oriented editor, is reputed to be the world's most powerful. The most popular line-oriented editor is SOS. Either editor can be used to prepare documents, data files, source files, batch control files or any other file containing text information.

A wide variety of compilers, interpreters, language processors and assemblers are available to DEC-10 users. A few of the most popular language processors are

- ALGOL
- APLSF
- BASIC
- COBOL
- FORTRAN
- LISP
- PASCAL
- SIMULA

The very powerful DEC-10 assembler is called MACRO. In addition, there are several cross compilers available for other machines such as the PDP-8 and PDP-11 as well as for several of the more popular microprocessors.

Several of the language processors can be used with an appropriate version of DDT (Dynamic Debugging Technique). This facility for interactively debugging programs has virtually eliminated the need for printed program dumps. DDT is a valuable tool for anyone engaged in extensive program development.

The most commonly used utility programs include DIRECT (determines contents of user's file directories), LINK (links and loads user programs), PIP (performs file transfers), BACKUP (saves and restores user files) and MAIL (message transfer facility).

The most important resource controlled by TOPS-10 is the file system. This is achieved through a sophisticated mass storage supervisor which controls each user's disk access without interfering with other users. All disk data is organized into groups of 128-word blocks called files. Each word can contain five 7-bit ASCII characters. The user specifies a name for each file, but need not be concerned with such details as pre-allocating space, obtaining retrieval information or maintaining an appropriate level of security for his files. The operating system dynamically performs all the necessary bookkeeping to accomplish the above.

When a file is created by a user, it is automatically considered to be owned by him and it cannot be accessed by other users. However, if the owner chooses to do so, he may override the system's generalized file protection scheme and selectively specify which of the system's other users may access his files and exactly what kind of access they are permitted. The fact that all files are automatically associated with a particular user means that system accounting can be performed automatically. There is never any need to 'register' a file. Because

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DECSYSTEM-10 NEWS continued

the system allocates disk space dynamically on a demand basis a user's file directory grows and shrinks as it is used. This will happen invisibly to the user unless the amount of disk space he is using exceeds the quota he received when he originally obtained his DECsystem-10 account.

UTCS has many enthusiastic users of the DECsystem-10. Neophytes and experts alike find it to be a useful tool in their work because of its ease of use, fast response and forgiving nature in the event of user errors.

DECsystem-10 Hardware

The University of Toronto DECsystem-10 has the following configuration.

Qty	Name	Description
1	KL10	Central processor (KL10D: "model B" [1090])
4	MF10	Memory (64 K words each)
3	RH20	Massbus controller (for disks and magnetic tapes)
4	RP06	Disk drives (309,700 128-word blocks [200 Mbyte])
2	TU45	Tape drives (800/1600 bpi)
1	DL10	Communications interface (for DN87 and DN61)
1	DN87	Communications front end (64 ports)
1	DN61	Front end for IBM communications
1	LP100	Line printer controller
1	LP05	Line printer (300 lpm)
1	BA10	Hard copy controller
1	CR10F	Card reader (300 cpm)
1	TD10	DECtape controller
1	TU56	Dual DECtape drives

Highlights of the Year

The big news during the past year was the installation last February of TOPS-10 version 7.01. Anyone who is not yet familiar with the features of 7.01 should read *DECsystem-10 News* in the April/81 issue of *COMPUTERNEWS*. For an online version of the report see the file DOC:701.MEM.

During December 1980, the DECsystem-10 was moved to UTCS' main machine room in McLennan Laboratories. The move was accomplished with a minimum of problems for the system's users. This consolidation of UTCS's array of hardware simplifies the problem of maintaining a satisfactory level of operator coverage.

Effective May 1 the DEC-10 magnetic tape library was merged with UTCS' "N" (native) and "F" (foreign) libraries. All tape mounts must now refer to the tapes' new "N" and "F" numbers. For further information call the tape librarian at 978-7319.

In August IBMLST was removed from the system. There were three reasons for this change:

1. Certain enhancements in the online accounting system required it.

2. IBMLST was difficult to maintain.

3. IBMLST had been fully superceded by IPRINT (which is also 40% faster).

Very few users had any difficulty converting. For those who might still require it UTCS will provide any necessary assistance (e.g., explaining the command syntax, helping convert old MIC files). Anyone wishing to obtain UTCS help in this matter should contact the time-sharing advisor at 978-6465 or a CSR.

On June 3 logged in users with dollar balances which become negative during the session discovered that they were automatically logged out. A warning is typed on the user's terminal shortly before the logout occurs. This functionality is a new feature of JOBDAE (Job Daemon) which is the system program in charge of first detaching and then logging off idle jobs.

In early May UTCS standardized on the Rutgers University version of the PASCAL compiler. An extensive survey of PASCAL users indicated that this change would create no serious problems. Experience since then has verified this belief. The

continued...

DECSYSTEM-10 NEWS continued

University of Hamburg PASCAL has been placed in OLD: for the benefit of those who may still wish to use it. The major differences of the Rutgers' version compared to Hamburg's are:

(1) English error messages,
(2) lower case allowed,
(3) mixed case formatter,
(4) read strings without quotes,
(5) interactive files treated differently.

Different runtime libraries means that REL files from one compiler cannot be used with those from the other.

During January, the third in a series of DEC-10 User Forums was held. Users appeared to enjoy the opportunity to express themselves directly to UTCS staff members on subjects as diverse as PACX, operations and system performance. UTCS hopes to schedule another User Forum for sometime this fall.

Throughout the year UTCS again plans to schedule a series of short courses which may be of interest to users of the DECsystem-10.

The courses and their online descriptions are:

Course	Description
Novice Users	DOC:NOVICE.CRS
Advanced Users	DOC:ADVANC.CRS
Assembler Language	DOC:ASSEM.CRS

Call the Information Office at 978-4990 to make further inquiries and see pages 10 and 11 in this issue.

A large number of TOPS-10 manuals are now available from the UTCS Information Office for half their original price. Several new manuals (part of the 7.01 package) are also available. See DOC:MANUAL.DOC for additional details.

During the year several UTCS personnel attended symposia organized by the Digital Equipment Corporation User Society (DECUS). Attending these conferences is almost a necessity for DEC customers who need to keep up-to-date with present and future hardware and software developments for systems such as the DECsystem-10. Reports of these meetings appeared in *COMPUTERNEWS* in the December/80 and July/81 issues. The July issue also contained an article describing plans for the DECUS Canada symposium scheduled for Toronto on February 9-12, 1982.

Dr. Edmund West

MCLENNAN LABS OUTPUT HANDLING

The procedures for handling output at the McLennan Labs site was changed September 1, 1981. These new procedures will be consistent with those at other UTCS printer locations:

1. All output generated at McLennan Labs (Room 367) will be filed there.

2. With the exception of APL fileprints, the username field on the job card will determine how output is filed:

   With the format 'USERNAME' the output will be filed alphabetically by username in a cabinet placed outside the computer room.

   With the format '//USERNAME' the output will be filed alphabetically by username inside the computer room.

   With the format '//BOXID.USERNAME' the output will be filed in the appropriate box. If the box indicated does not exist in Room 367, filing will be as per the paragraph above.

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OUTPUT HANDLING continued

3. APL output will be filed in similar fashion depending on the fileprint message.

4. There will be regular pickup of material from the EAT box for delivery to the Engineering Annex (Monday to Friday, twice daily at approximately 09:00 and 18:00; Saturday and Sunday, 08:30). Extra pickups at approximately 11:00 and 14:00, Monday to Friday, will be scheduled most days.

Users who wish to pick up their output at the Engineering Annex must now code the username field on the job card with the format '//EAT.USERNAME'. Users who coded '//ITS.USERNAME' no longer need to use the ITS prefix in order to pick up their output at McLennan Labs.

Bill Lauriston

NEW CALCOMP 1051 COLOR PLOTTER

Graphics users will be happy to know that we are in the process of replacing our old Calcomp plotters with a new Calcomp 1051 drum plotter. This introduction of high-quality color graphics will represent a major improvement in graphics services. The plotter hardware arrived in the week August 24th. We plan to have it available for public use in September 81.

The Calcomp 1051 color plotter has 4 pens operating at a speed of 10"/second, with a resolution of 0.001". Liquid ink, ball point and nylon tip pens are available in black, blue, red, green, brown and orange. There are different types of papers with widths of 34" and 11".

Initially the Calcomp 1051 will be operated only as a plotter. System development for its online operation and its software modification to conform to UTCS conventions has commenced. After a period of production, UTCS will incorporate the plotter into KIG for integration with Gould and graphics terminals on the hardware-related side, and with high-level packages like SAS and SURFACE II on the software-related side. Watch HOTNEWS and *COMPUTERNEWS* for implementation status and for further developments.

There will be a *free user trial period* for the Calcomp 1051 at the beginning of September. Users interested in trying the new plotter, within reasonable limits, are urged to contact their CSR for further information.

Kin Fong

NEW VERSION OF WATERLOO SCRIPT AVAILABLE

Waterloo SCRIPT, accessible from the TSO or WYLBUR environment, is a text formatter suitable for preparing documents that range in complexity from simple 'office correspondence' to large manuals and books. Currently, UTCS offers an older version of Waterloo SCRIPT, release 3.2, May 1977, which for historical reasons is called NSCRIPT.

However, at the beginning of October, UTCS will install the latest version of Waterloo SCRIPT, release 3.7, and will keep it up-to-date with the developers.

In the new version many bugs have been resolved and new, useful features and commands are available. Without a doubt, this is a much better product!

continued...

WATERLOO SCRIPT continued

Unfortunately, some NSCRIPT format commands have been changed or deleted. As a result, many old NSCRIPT documents will *not* format under the new version, with the exception of documents prepared with SYSPUB or SYSPAPER macros. For this reason, we shall retain the old version of Waterloo SCRIPT.

This release, NSCRIPT, will continue to be accessible in batch by:

```
// EXEC SCRIPT
```

and in TSO by the NSCRIPT command. The TSO NSCRIPT command will be removed from the system on August 1, 1982.

To access the new version, in batch, execute the new catalogued procedure WSCRIPT (i.e., // EXEC WSCRIPT). In TSO use the WSCRIPT command. For additional information in TSO, type HELP WSCRIPT.

Information about UW SCRIPT 3.7 facilities, new features, documentation, JCL and a running summary of 'important' changes to the various releases of UW SCRIPT since the release of our production version are in the dataset 'APPL.SCRIPT.NEWS.TEXT(SCRIPT37)'.

To print it from TSO with a special form use the 'duplicate' offline command:

```
DUP 'APPL.SCRIPT.NEWS.TEXT(SCRIPT37)' DEST(CENTRAL) FORMS(2018)
```

From batch use the IEBGENER print utility:

```
// EXEC IEBGENER
//SYSUT1 DD DSN=APPL.SCRIPT.NEWS.TEXT(SCRIPT37),DISP=SHR
//SYSUT2 DD SYSOUT=(A,,2018)
//
```

Users are most welcome to use this new and improved product.

Lidio Presutti

NAG NUMERICAL LIBRARY AVAILABLE

UTCS has obtained the NAG (Numerical Algorithms) numerical subroutine library on a trial basis.

The NAG package is an excellent library collection, similar to the IMSL routines. In depth documentation is available in the Information Office and the library is in the dataset APPL.MATH.NAG.LOADLIB.

Users may obtain a summary of the library routines by listing the dataset APPL.MATH.NAG.DOCUMENT(SUMMARY).

UTCS is very interested in user reaction to the library. We shall keep NAG permanently if it proves popular with numerical users. Please contact your CSR for more information.

Herb Kugel

SAS 79.5 NEWS

SAS 79.5 has been the default version on the IBM for the past few months. This article spotlights some of its new features and informs users about their availability at UTCS.

References

Most of the detailed information about recent changes to SAS is available in two Technical Reports, the most useful being *SAS 79.5 Changes and Enhancements* (SAS Technical Report P-115). This report and the 1979 SAS User's Guide comprise complete reference documentation for mainstream SAS until a new edition of the User's Guide is published. *SAS 79.5 Supplemental Procedures* (Report S-12x) covers the new procedures added to the SAS Supplemental Library. As well, the Spring 1981 issue of SAS Communications, the quarterly newsletter, contains additional information on various topics. The SAS 79.5 Installation Guide has limited extra detail on the systems options added. These documents are all available for reference in the Information Office, Engineering Annex. The reports can be ordered there. Other available SAS manuals, useful for UTCS users, are:

SAS User's Guide (1979)
SAS Introductory Guide
SAS Applications Guide (1980)
SAS Programmers Guide (for experts only)
SAS/GRAPH User's Guide (1981)
SAS/ETS User's Guide (1980)
SAS Supplemental Library User's Guide (1980)

The manual for using PROC RECODE, a procedure for recoding variables in a dataset, is available online (and not documented elsewhere) in the dataset APPL.STAT.SAS.RECODE.MANUAL. To get a copy of the manual for RECODE, use // EXEC RECODMN.

New Procedures Available in SAS 79.5

PROC FASTCLUS - performs disjoint clustering of very large datasets and requires only two or three passes over the data

PROC PRINCOMP - computes principal components of variables in a SAS dataset and outputs them to a new dataset

PROC REG - fits least-squares estimates to linear regression models (more details later)

PROC RSREG - fits the parameters of a complete quadratic response surface, then determines critical values to optimize the response with respect to factors in the model

PROC STEPDISC - performs a stepwise discriminant analysis by forward selection, backward elimination or stepwise selection

PROC TRANSPOSE - transposes a SAS dataset, changing observations into variables and vice versa

PROC VARCLUS - performs either disjoint or hierarchical clustering of variables based on a correlation matrix

Regression Procedures

Several new functions have been added to SAS. STATE and ZIP CODE functions will not interest many, but some of the new mathematical, statistical and characters functions will be useful:

POISSON	Poisson distribution function
PROBF	F distribution function
PROBT	Student's t distribution function
INDEX	Search for a pattern of characters
LEFT	Left-align a character string
TRANSLATE	Change characters

continued...

SAS 79.5 NEWS continued

There are also a few new date, time and date-time formats and functions, as well as some new informats.

New System Options

There are many SAS options and parameters that have been set to default values for all SAS jobs run at UTCS. The SAS procedure OPTIONS may be used to obtain a listing of the current system options and parameters, i.e., PROC OPTIONS. The new options available are BAUD=, DEVICE=, NOCAPS, NOCHKPT, NODUMP, NODUMPSHORT, NODYNALLOC, NOSPOOL, NOINCLUDE, NOGRAPHICS. The options have been set to make NOSPOOL, NOINCLUDE, NOGRAPHICS. The options have been set to make life easy for the 'average' user. However, if you wish to change the options for one of your runs, use the word OPTIONS on the EXEC statement in your JCL. For example, if you do not want to have the date printed at the top of each page say:

```
// EXEC SAS,OPTIONS='NODATE'
```

if you are not using graphics or the %INCLUDE facility, costs of SAS can be reduced up to 20% by using the following options:

```
// EXEC SAS,OPTIONS='NOGRAPHICS
NOINCLUDE'
```

The %INCLUDE Facility and Macro Commands

Enhancements have been made to SAS to facilitate and promote the use of libraries of SAS programs and to make life easier for interactive (TSO) users of SAS. You can use the %INCLUDE command to include SAS source lines from the SAS spool area, sequential datasets or members of a partioned dataset. The included lines may in turn contain %INCLUDE lines. The datasets can be concatenated and can have any record format and length. The form of the %INCLUDE command is:

```
%INCLUDE specification / options;
```

where the valid specifications are:

ddname or ddname(membername) - include input from an external sequential file
nn or n1-n2 - include spooled lines, where nn is a single line number and n1-n2 is a range of lines
* - include input source from the terminal

Many additional options are available. For further details, see the Spring 1981 issue of SAS Communications.

Using the Gould with SAS/GRAPH

The April 1981 issue of *COMPUTERNEWS* features SAS/GRAPH on page 3. Since the Gould plotter is one of the most popular graphics devices at UTCS, we shall reiterate that it is supported by SAS/GRAPH through KIG (Kernal Interactive Graphics). To specify that you want to use the Gould plotter, use the GOPTIONS statement:

```
GOPTIONS DEVICE=GOULD;
```

PROC GOPTIONS can be run to tell you the graphics options currently in effect. If you are using the SYMBOL statements with the Gould plotter, you may get different line thicknesses with GPLOT instead of different symbols. To correct this problem, specify COLORS=(NORMAL) in the GOPTIONS statement and C=NORMAL in each SYMBOL statement.

For problems with SAS 79.5, please contact your CSR.

Diane Mitchell
Rob Janes

SPSS RELEASE 9.0

The newest release of SPSS is available. New features will be of interest to users such as the addition of these procedures:

MANOVA - This is a generalized multivariate analysis of variance and covariance program. It will perform univariate and multivariate linear estimations and tests of hypotheses for any crossed and/or nested design.

BOX-JENKINS - This may be used to fit and forecast time series data by means of a general class of statistical models. Currently, this routine can only analyze univariate time series.

NEW REGRESSION - This incorporates the most recent methodological developments. There are five equation-building methods available which can be used together to explore several models for a set of variables or to obtain the desired final model.

Complete documentation for these procedures is in the new manual *SPSS Update 7-9*. It contains the most recent information on procedures and facilities for Releases 7, 8 and 9 and is available in the Information Office.

The SPSS Graphics, also documented in this manual, is not supported by UTCS. If you use statistical graphics, SAS/GRAPH is the recommended available product, being very flexible, well-documented and easy to use.

For questions about this new SPSS release, please see your CSR. Watch HOTNEWS for additional implementation information.

Diane Mitchell

PERSONNEL CHANGES

Thanos Kaponeridis resigned as Supervisor of Information Services for a more career-oriented job. Thanos has worked at UTCS since October 1978 in various positions of responsibility.

Replacing Thanos is Dave Reed, formerly of the Applications Support Group. Welcome, Dave.

Effective August 1, 1981:

Bill Lauriston has accepted the position of Operations Manager.

Terry Wood has been appointed Manager of the revised Academic Services department (temporary name). This area includes Academic CSRs, the Applications Support and Information Services.

Don Gibson has been appointed the new Administrative Services Manager (temporary name). This revised section now includes the Text, Data/Text Entry, Administrative CSRs, Contract Programming Groups and the newly-created Office Automation function.

Ralph Lombardi is Acting Assistant Director/Business Manager. He will be responsible for the development and ongoing support of our internal accounting (personnel and budgetary), business reporting and user accounting services.

Ruth Gbalajobi has accepted the responsibilities of Office Manager.

After 10 years, Janet Barr has left UTCS. She was the editor in the Publications

continued...

PERSONNEL CHANGES continued

Group and has recently been working part-time as a writer for this group. We wish her all the best in the future.

Ted Jakubow has left CSS. Shirly Manimalethu, operator on the DEC-10, is now working at Scarborough College, a transfer from the main campus.

Dave Gamey has left the Systems Group for a position in industry.

Kathy Dunlop, previously working 'behind the scenes' at UTCS, started with Information Services as a technical writer, on August 10.

Norman Housley is now the Manager for Communications & Small Systems.

Ian Darwin has been promoted to CSS Software Supervisor.

Marilyn Peters is working with the Systems Group.

Kathryn Bourne

NEW TITLES IN THE DCS LIBRARY

Abrams, Marshall.
Computer networks: a tutorial, by
M. Abrams, R.P. Blanc and I.W. Cotton.
Revised and updated 1980.
New York, IEEE, 1980.

Adkison, Leon.
Study guide to accompany Sanders'
Computers in Society. (3d ed.) by L. Adkison,
D.H. Sanders and R. Fry.
New York, McGraw-Hill, 1981.

American Society for Information Science.
Proceedngs of the annual meeting, v.17
(1980).

Beckman, Frank S.
Mathematical foundations of progamming.
Reading, Mass., Addison-Wesley, 1980.

Book, Ronald V., ed.
Formal language theory: perspectives and
open problems.
New York, Academic Press, 1980.

Givone, Donald D. and R.P. Roesser.
Microprocessors/microcomputers: an
introduction.
New York, McGraw-Hill, 1980.

Gore, Marvin and Stubbe, J. 2d ed.
Instructor's resource manual to accompany
"Elements of systems analysis for business
data processing".
Dubuque, Iowa, Wm. C. Brown, 1979.

Grogono, Peter.
Programming in PASCAL. Rev. ed.
Reading, Mass., Addison-Wesley, 1980.

Koffman, Elliot B.
Problem solving and structured programming
in PASCAL.
Reading, Mass., Addison-Wesley, 1981.

Kulisch, Ulrich W. and Miranker, W.L.
Computer arithmetic in theory and practice.
New York, Academic Press, 1981.

Miller, Webb, and Wrathall, C.
Software for roundoff analysis of matrix
algorithms.
New York, Academic Press, 1980.

Myers, Glenford J.
The art of software testing.
New York, Wiley, 1979.

Myers, Glenford J.
Software reliability: principles and practices.
New York, Wiley, 1976.

National Computing Conference '81.
Personal computing digest.
Arlington, Va., AFIPS Press, 1981.

continued...

NEW TITLES continued

Phister, Montgomery.
Data processing technology and economics.
2d ed.
Bedford, Mass., Digital Press, 1979.

Redmond, Kent C. and Smith, T.M.
Project Whirlwind: the history of a
pioneer computer.
Bedford, Mass., Digital Press, 1980.

Richards, Thomas C. and Cheney, R.S.
COBOL: a structured approach.
Colombus, Ohio, Charles E. Merrill, 1981.

Standish, Thomas A.
Data structure techniques.
Reading, Mass., Addison-Wesley, 1980.

Thompson, Robert G.
BASIC: a first course.
Columbus, Ohio, Charles E. Merrill, 1981.

Weitzman, Cay.
Distributed micro/minicomputer systems.
Englewood Cliffs, N.J., Prentice-Hall, 1980.

UTCS SYSTEMS

3033/N8 PROCESSOR

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR, APL and ATMS services
- 8 megabytes of memory
- MVS with JES2

4341 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC, Batch, TSO and ATMS services
- 8 megabytes of memory
- MVS with JES2

DECSYSTEM-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in Old Metro Library Bldg., room 244
- DEC PDP-11/40 with GT44 Graphics
- DEC PDP-11/05 with GT40 Graphics
- Various Z80-based microcomputers (S-100, CP/M)
- Radio Shack TRS-80
- Western Digital Pascal MicroEngine
- Apple II Plus
- provides specialized interactive graphics
- provides online and real-time computing services, data acquisition and conversion, and minicomputer services

UTCS DIRECTORY

POSITION	ROOM	CENTREX PHONE NUMBER
Director		
Dr. Doron Cohen	MP350	8948
Associate Directors		
Al Heyworth	MP350	4936
Eugene Siciunas	MP350	5058
Faculty Liaison Officer		
Dr. Frank Spitzer	MP350	4619
Communications & Small Systems Manager		
Norman Housley	ML350	4967
Operations Manager		
Bill Lauriston	MP350	7092
Systems Manager		
Ward Beattie	MP350	3579
Academic Services Manager		
Terry Wood	MP350	7130
Administrative Services Manager		
Don Gibson	MP350	7331
Business Manager		
Ralph Lombardi (Acting)	MP345	4428
Information Services Supervisor		
Dave Reed	EA206	2066
General Inquiries	EA206	4990
Accounting Supervisor		
Marg Doherty	MP257	3960
Accounts (U of T)	MP257	8702
Accounts (External)	MP257	7148
Access Codes	MP257	8703
Programming Services Supervisor		
Paul Roth (Acting)	SG201	8701
Applications Supervisor		
Herb Kugel	SG304	7286
CSS Software Development Supervisor		
Ian Darwin	ML244	6134

continued...

UTCS DIRECTORY continued

Text Services Supervisor		
John Bradley	MP251B	3995
Entry Services Supervisor		
Vera Cabanus	MP331	5040
Text Entry, Keypunching	MP331	4565
Data Entry	MP331	5273
Computing Services Representatives (CSRs)		
Engineering Annex		
Sue Chong	EA104	4357
Advisors	EA103	4516
Time-Sharing Support		
John Mavity	SG204	7109
Advisors	SG204	6465
Erindale		
Peter Wall	2043	828-5311
Scarborough		
Bob Blackburn		284-3173
Arts and Science		
Bill Fehlner	SS2133	6509
New Physics		
Bob Chambers	MP1202	8823
External		
Ihor Prociuk	SG200	6875,6885
Supervisors, Operations		
Paul Scarborough (IBM 3683N8A)	MP368	6220
Krishna Patnaik (DEC-1090)	MP368	4086
Dave Wong (IBM 3033N8B)	MP368	6864
Tape Librarians		
Academic Services	MP368	7319
Administrative Services	MP368A	6693

Key:

EA = Engineering Annex
ML = Metro Library
MP = McLennan Physical Laboratories (New Physics)
SG = 49 St. George
SS = Sidney Smith

Job and System Status Queries

SYSTEM/3033N8A / TSO, WYLBUR, BATCH, ATMS, APL	7393
DEC-1090	4318

Time-Sharing Services through PACX	**Dial-Up**
DEC-1090,APL,ATMS,TSO,WYLBUR	6200 Centrex 6201 Non Centrex

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